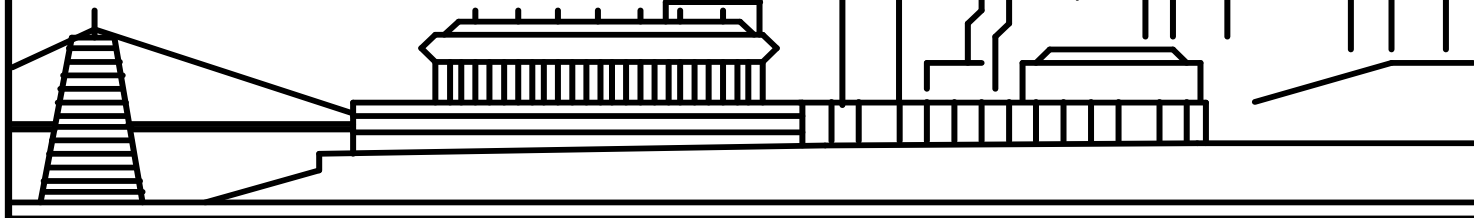




INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.



APRIL 1997

IEEE CINCINNATI SECTION NEWSLETTER

APRIL MEETING: DIGITAL CAMERAS

DATE : THURSDAY, APRIL 24, 1997

PLACE : Institute of Advanced Manufacturing Sciences (IAMS) - See map (page 2) for directions

TIME :
5:30 PM (Social Time)
6:00 PM (Dinner)
7:00 PM (Program)
8:30 PM (Approximate - Adjourn)

COST: NO CHARGE FOR DINNER!!

**Reservations are required for dinner!!!
Dinner Menu is pizza plus trimmings!**

RESERVATIONS REQUIRED BY NOON, TUESDAY, APRIL 22nd

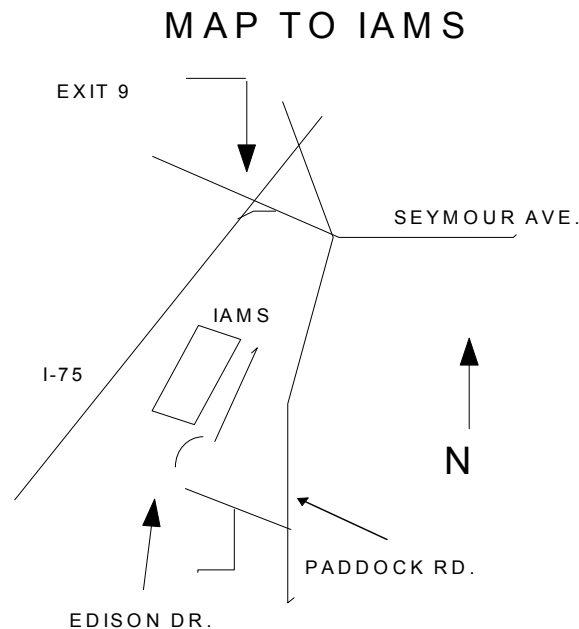
IEEE Members: Please call **Dee Scott at 385-9446** if you plan to attend.

Students: Please call: **Jim Everly - UC/CAS (556-4241), Steve Yelton - CSTC (569-1768), or Randy Holt - NKU (572-5710)** if you plan to attend.

ABOUT THE MEETING: Digital cameras are made of the integration of diverse technologies including: high resolution single chip image sensors, blending systems incorporating optical anti-aliasing filters, digital image processing software and hardware, image storage hardware, color science and image structure analysis. Electronic imaging combines with fields of image science and electronics with a single product. This talk will provide an overview of the key technologies and describe some of the applications for digital cameras.

ABOUT THE SPEAKER: Mr. Les Moore, Manager of the Digital Camera Advanced Development Laboratory at Eastman Kodak Company has spent 19 years in Electronic Imaging Systems area. Mr. Moore has

contributed to the development of FLH-1000 Hi-definition Television Telecine - CINCON - Motion Picture Film Scanner and development of Digital Camera Systems Technology. He is a 1980 graduate of the Rochester Institute of Technology with a Masters Degree in Electrical Engineering.



CHAIR'S MESSAGE

by Randy Holt, Section Chair

The presentation on Java by Keith Wright (Sun Microsystems) at our March meeting was terrific! We had a great turnout but missed those of you who couldn't make it. Mr. Wright gave us a good exposure to the Java language, talked briefly about Java chips, gave a brief demonstration of a Java terminal, and showed us part of a Sun videotape that illustrated how some Sun customers are using Java. The only disappointment was the quality of the projection system in the IAMS auditorium, but Mr. Wright did a great job of describing what we had trouble reading on the slides. I'm hoping to get a copy of the slides in HTML format that I'll make available to those of you who would like to view them, probably as an e-mail attachment and hopefully on our Web page. I'll let you know when I get something.

We also had some interesting conversations with Mr. Wright during dinner. Some of this dealt with Microsoft and the utter domination of personal computer hardware and software by the "Wintel" powers. I mean no disrespect to the quality and the marketability of Microsoft, but I am concerned about how we all appear to give just about all of our business to Microsoft and Intel, even when there are very competitive products from other vendors that are just as good (and perhaps better). My long-term fear is that of a monopoly, especially if we permit other businesses to be exterminated by the marketing muscle of these two companies. I don't believe such a domination in the marketplace is good for us in the long run. The Java phenomenon is a clear alternative to Microsoft and their ActiveX product. It has some clear pluses (including a more secure package on the Internet), and offers software vendors a way to create products that can run on many computer platforms. As "technies," we IEEE members are a key ingredient to how our companies and our friends make their computer hardware and software choices, so I hope we will not permit companies like Microsoft to run roughshod over everyone and create a computer world where they and Intel are "kings." Where there are products like Java and

Netscape Navigator, let's do our part in encouraging competition and not let happen to PC software companies what is happening to Apple and the Macintosh partly because of utter Microsoft domination.

Well, enough time on the soapbox! I am really happy to be your chair and am looking forward to working with you to make our organization fun, interesting, and strong.

I hope to see you at our April meeting where Kodak will be talking about digital cameras. Don't forget that the section is treating you to free pizza (we'll also have a salad and soft drinks)! And as I understand it, Kodak intends to bring some door prizes (digital cameras — NOT!!!, but probably some disposable cameras like they brought the last time they visited us). Don't forget to call Dee Scott and let her know if you'll be at IAMS for dinner so that we can order the right amount of pizza. See you there!!!

DEVELOPING SOFTWARE PROGRAMMING

by R. J. Reiman, Historian

All early computers. ENIAC. the IAS machine, Manchester University's Mark 1, the IBM 701, and Whirlwind were very difficult to program. In general, the first computers were programmed in machine code of binary numbers, or in codes known as ASSEMBLY LANGUAGES. These used letters, numbers, symbols, and short words such as ADD. After entry into the computer, it translated these languages into machine code by means of internal programs called ASSEMBLERS, and the resulting machine code was punched out on cards or tape and was then re-entered into the computer by the operator. Later, high-level programming languages which used ordinary English phrases and mathematical expressions were developed. IBM and Remington Rand then researched advancing these techniques.

An ENIAC program was a wiring diagram with instructions on connecting the machine's switches and plug-boards to solve a given problem. Numerical circuits and programming circuits had to be connected in detail, a 2 or 3 day operation, to solve a complicated problem. ENIAC's team, Herman Goldstine and John W. Mauchly, with help from John von Neumann, developed FLOW CHARTING, a pictorial representation of the computer's operation.

By late 1940's, ENIAC was superseded by stored-program computers which enabled avoidance of the computer wiring step, and allowed instructions to be fed directly by punch cards or magnetic tape decks. This, however, still required the use of binary numbers which was awkward for people. UNIVAC. at Mauchly's suggestion, developed a SHORT CODE with letters like SO and numbers like 03 to simplify an equation such as $A=B + C$.

In the early 1950's, FLOATING POINT system enabled large numbers to become manageable. For example, 2,500 became .25 X 10 to the 4th power. This system was not done automatically. In addition, the programmer had to assign memory address i.e. INDEXING, and also handle input/output operations.

In 1951, Grace Murray Hopper, a mathematician at Remington Rand, conceived of an internal program for automatic floating-point operation, called a COMPILER. The compiler generated an organized program and carried it out. The idea spread to programmers at MIT, J. Halcome Lanin, and Niel Zierler, invented the first practical compiler for WHIRLWIND, which could use words like PRINT and STOP, as well as do equations like $A + B = C$ in their natural form. Their compiler required excessive machine time to operate.

In 1953 John Baccus of IBM began on a compiler and higher language program called FORTRAN, FORMula TRANslation, project. The effort proved difficult to complete, and it took until 1956 before debugging could begin and be concluded in 1957. The program manual for the IBM 704 was 51 pages long, described the high level language, and explained about PUNCH, READ, and DRUM. There were many field problems with FORTRAN, but it was a landmark in the history of computers. You could make the computer do your bidding,

with the computer automatically and rapidly translating your instructions into machine code. IBM licensed FORTRAN to competing manufacturers, and now computers could speak the same language! FORTRAN was not, however, suited for business and other applications. These would be filled by COBOL, ALGOL, AND BASIC.

A MESSAGE FROM YOUR PACE CHAIRMAN

by Bill Lohner, PACE Chairman

" A Network of Professional Activities for Engineers "

As I mentioned in the February Newsletter I am trying to find 6 or 8 people who would like to be part of a group to promote technical and scientific studies in our high schools. I feel that if I come up with a plan and put it in this column I could get some response from the section. If any of you have any suggestions please let me know.

Our Executive Committee has discussed scholarships to promote interest but the problem is how to administer it. Perhaps there is some way to make scholarships available to sons and daughters of IEEE members. Again input is needed on how to administer this. I still plan to distribute literature to the high schools to promote technical and scientific information.

We will be inviting electrical engineering and electrical engineering technical students to our meeting this month to promote continuing education and IEEE to the students. If you can come to the meeting please do so. Not only will you meet the students, but will hear an excellent presentation on digital cameras by Mr. Les Moore, a development engineer from the Eastman Kodak Company. The presentation will be on " Digital Cameras ". Plan to attend.

William J. Lohner, PACE Chairman
Cincinnati Section IEEE
(513) 385-7268

IEEE NEWS

NEW PENSIONS COALITION AIMS FOR PORTABILITY BY YEAR 2000

Vowing that "You can take it with you!," participants in the Dec. 12, 1996, IEEE-USA Pension Portability Forum in Washington established an organizational framework for a Pension Portability Coalition that will seek to achieve full portability of pension benefits by the turn of the century. The day-long gathering, organized by our Engineering Employment Benefits Committee (EEBC) offered a broad spectrum of organizations interested in pensions issues an opportunity to hear current perspectives from pension-policy analysts, including Ellen Seidman, a special assistant to the President for economic policy; discuss appropriate directions for needed reforms; and develop a common vision for positive change.

The Forum brought together representatives from concerned engineering societies, government agencies, think tanks, pension-rights organizations and benefits-industry groups. EEBC Chair Mona K. Draper moderated the coalition-building process, which resulted in a common vision statement by forum participants. In addition to setting a four-year goal for the realization of the coalition's objectives, the group defined pension portability as having as its key elements accelerated vesting, centralized vehicles, transferability of benefits, benefit parity for all employees regardless of tenure, preservation, and universal access.

During the first months of 1997, forum participants will be invited to enlist their organizations' support for the new coalition and meet again to develop specific goals and objectives for common action during the 105th Congress.

BUDGET, BENEFITS ISSUES ON FRONT BURNER IN 105TH CONGRESS

As the 105th Congressional session opened this year, veteran legislators dropped bills in the hopper that they have sponsored before but failed to get passed. Here is a sampling of familiar themes included in bills introduced in January:

- * **Balanced Budget Agreement:** Rep. Bill Archer (R-Texas) introduced a measure calling for a constitutional amendment to ensure a balanced budget. Archer, who chairs the Ways and Means Committee, the body with jurisdiction over tax measures, said his measure contains an important distinction -- the vote margin needed to waive the balanced budget requirement. Under a similar 1995 measure, the margin needed was three-fifths of the House and Senate. Now Archer is calling for a two-thirds margin. The proposal was referred to the Judicial Committee.
- * **Social Security:** Congress is not expected to deal with the Social Security "crisis" in this session, but will, nevertheless, take small bites of the problem. Both the Social Security and the Medicare programs face difficulties in coming up with funds to pay out to future recipients.

In the 105th Congress, the committees that oversee Social Security (the House Ways and Means and Senate Finance) will hold hearings to expand the debate and take formal testimony from authorities and interest groups. Sen. William Roth, R-Del., chair of the Senate panel, plans to introduce legislation that would allow a limited number of young workers to invest a portion of their Social Security holdings in the stock market.

Three alternative "solutions" to the Social Security problem were offered early in January by members of an advisory commission created in 1995 by the Secretary of Health & Human Services, Donna Shalala. The common thread is investment of some Social Security resources in private securities.

- * **Health Insurance:** Rep. Pete Stark, D-Calif., has introduced legislation to help retirees, aged 55 and older, obtain or continue health insurance coverage. His bill would make the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) health continuation program available to those between 55 and 65, the time they become eligible for Medicare. It requires employers with a payroll of 20 or more to offer continued access to group health insurance to persons who lose coverage under specified conditions. The Stark bill calls for age 55 or older to pay 110 percent of the group rate policy, compared to 102 percent for most currently eligible individuals.
- * **Senate Schedule:** The Senate's new majority leader, Trent Lott, has stated that budget matters will be the first measures for FY '98 in the Senate. Lott wants the Senate to re-examine the balanced budget amendment to the Constitution.

Lott promised early Senate action on confirming the President's nominees for cabinet and sub-cabinet posts and on re-authorization measures, particularly those that involve the economy -- with transportation and infrastructure being most prominent, receiving federal funds for highways and mass transit.

(Continued on Page 7)

**PLENTY OF
PRIZES**

**MEET FELLOW
MEMBERS**

CINCINNATI IEEE SOCIAL EVENT

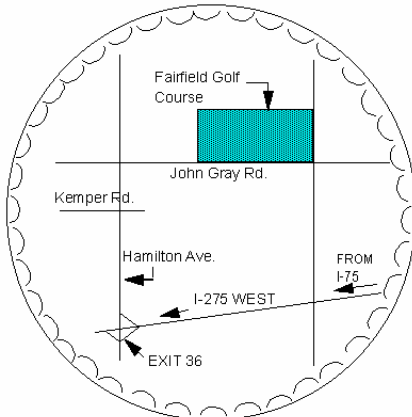
FRIDAY, JUNE 6, 1997

AT THE FAIRFIELD GOLF COURSE
(FORMERLY PLEASANT RUN)

2200 JOHN GRAY ROAD
FAIRFIELD, OHIO

- * SIT DOWN DINNER-
CHARCOAL GRILLED NEW
YORK STRIP STEAK
- * BAKED POTATO,
VEGETABLE & SALAD
- * COFFEE, TEA, MILK, FREE
BEER & SOFT DRINKS &
SNACKS

COST: \$20 (MEMBERS)
\$35 (NON-MEMBERS)
(CHECKS PAYABLE TO IEEE, CINTI
SECTION)



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RESERVATIONS WHEN
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THOSE IN YOUR GROUP-
WE WILL COMPLETE
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YOU MUST GIVE YOUR NAME AND IEEE MEMBER
NUMBER WHEN MAKING RESERVATIONS

IEEE NEWS

(Continued from Page 5)

One distinguishing characteristic of the 105th Congress is that for the first time in about 40 years, lawyers are no longer the dominating occupation in the House -- they are outnumbered by business people and bankers instead.

IEEE-USA CANDIDATES ANNOUNCED

On Feb. 12, in executive session, the IEEE United States Activities Board approved the candidates to be placed on the ballot for the Institute's general election later this fall. The candidates are as follows:

- * For 1998 IEEE-USA President: George F. McClure, John R. Reinert
- * For 1998 IEEE-USA President-Elect: Paul J. Kostek, Charles S. Lessard
- * For 1998 IEEE-USA Member-at-Large: Jerry C. Aukland, T. J. Tarn
- * For 1998-99 IEEE-USA Member-at-Large: Frank E. Lord, Robert P. Noberini

Elected leaders will take office on Jan. 1, 1998.

YOUNG ENGINEERS INVITED TO FREE VIDEOCONFERENCE ON CAREER ISSUES

The American Society of Mechanical Engineers (ASME) is sponsoring a videoconference on April 16 which focuses on career topics of interest to young engineers. The 2nd Young Engineers Forum broadcast will address emerging technologies, opportunities for international employment, staying competitive in the employment market, managing interpersonal relations for career development, and lifelong learning and problem-solving techniques. IEEE member Robert L. Krause, P.E., will discuss "The MBA Option." For more information or for registration materials, contact ASME's Ellen Lung at lunge@asme.org.

ADMINISTRATION MODIFIES STANCE ON INTELLECTUAL-PROPERTY TREATIES

Following strong criticism from IEEE-USA and other groups, the Clinton Administration has backed away from some controversial provisions in two new treaties pending in the World Intellectual Property Organization (WIPO). In a Nov. 25, 1996 letter to the White House, IEEE-USA asserted that "new intellectual-property domestic and/or international laws may be needed to keep up with the rapid changes in technology -- but not at the expense of allowing international treaties to adversely dictate U.S. domestic policy."

AEROSPACE POLICY COMMITTEE COMMENTS ON PROPOSED NATIONAL AIRSPACE SYSTEM

In a December 16, 1996 letter, IEEE-USA's Aerospace Policy Committee commended the Federal Aviation Administration (FAA) for its report, FAA National Airspace System (NAS) Architecture Version 2.0, but expressed "deep concern" that the report's sole basis for navigation is the Global Positioning System (GPS). The committee stressed that at least one other form of navigation system be maintained in the event that a GPS signal is lost or subverted.

CONGRESSIONAL FELLOW ACCEPTS PERMANENT POSITION ON CAPITOL HILL

IEEE-USA 1996 Congressional Fellow Subrata Ghoshroy has taken a position on the minority staff of the U.S. House National Security Committee, where he will work with Ranking Minority Member Rep. Ronald Dellums, D-Calif., on R&D and arms-control issues.

IEEE-USA COMMENTS ON PROPOSED HDTV STANDARD

In the wake of a proposed Federal Communications Commission (FCC) standard for high-definition digital television (HDTV), IEEE-USA sent FCC Commissioners a copy of its new HDTV position statement on Dec.

18, 1996, to "help...in formulating further policy." The FCC issued the proposed standard Nov. 27, 1996, after the announcement of a compromise agreement on the standard between broadcast- and computer-industry groups.

IEEE-USA OFFERS 1997 SALARY SURVEY PREPUBLICATION DISCOUNT

Members can save \$10 from the regular IEEE member price for the 1997 IEEE U.S. Membership Salary and Fringe Benefit Survey if they place their orders before the publication date of May 15. The Survey will reveal the latest statistics on U.S. engineering salaries, providing valuable information to help members consider prospective jobs, negotiate their salary and benefits, or find out about related positions in their field. It will also contain a special regression-analysis formula, based on more than 50 individual variables, to help users pinpoint their personal salary estimate. To order at the special prepublication member price of \$64.95, call 1-800-678-IEEE by May 15 and ask for product code UH2966-0-0-10.

ENGINEERING RADIO ADS AVAILABLE

A series of radio public-service announcements highlighting the achievements of U.S. engineers is now available from the IEEE-USA Washington Office. The 60-second ads, produced by the American Association of Engineering Societies' Media Relations Advisory Committee and sponsored by Tau Beta Pi, illustrate the theme, "Engineers: Inventing Today, Implementing Tomorrow," and feature such engineering greats as Jack Kilby, John Pierce, Harold Rosen, Marvin Camras, Wilson Greatbatch, Paul Lauterbur, Albert Babb, and Abel Wolman. For a copy of the tapes to air on your local station, contact IEEE-USA's Chris Currie at 202-785-0017, ext. 342, or c.currie@ieee.org.

AT&T LABS STUDENT ENTERPRISE AWARD

The IEEE and AT&T Labs have partnered to sponsor the new AT&T Labs Student Enterprise Award. AT&T Labs has generously provided \$5,000 annually to fund the award program for the next five years. The 1996-97 award has been given to the IEEE Student Branch at the University of Illinois-Urbana for their Engineering Open House Projects proposal. \$1,000 in project funding will be sent to the Student Branch to complete their project.

Here is an excerpt from the proposal abstract: "The Engineering Open House (EOH) has traditionally been an excellent means to recruit new members and future officers, provide practical project experience and earn recognition for the Student Branch on campus. The EOH project will highlight two exhibits, a "GPS Surveillance", a system utilizing new GPS technologies to track a roaming target with a camera (team members will be juniors and seniors) and "Simplified Surround Sound" project, utilizing a DSP chip to transform the average stereo system into a surround sound system, involving freshmen and sophomore students."

Project funding is available for proposals developed by teams of IEEE Student members from Student Branches established at over 900 universities and colleges from around the world. The objective of the competition is to provide IEEE Student members with the opportunity to work with others on an engineering project, while simultaneously strengthening Student Branch programs. Topics may be of a technical or non-technical nature ranging from research on state-of-the-art technology to community service programs. Each Student Branch submits a proposal outlining how the project will be completed, its impact on students and increasing professional and technical awareness, a time line and budget with a request for up to \$1,000 in funding. Proposals are due 15 November, 1997 and should be sent to IEEE Student Services. Please contact the IEEE Student Services Department for award guidelines. We look forward to seeing how creative our Student Branch members can be!

MARK YOUR CALENDARS!!!!!!

See the latest in Electronics, Measurement and Control Technology at the 1997 Cincinnati ISA-IEEE Conference & Exhibit which will be held on April 22 & 23 at the Cincinnati Convention Center.

The Conference features:

- * 17 FREE Technical Conference Sessions;
- * A Process Control Short Course by Dr. Carlos Smith;
- * Eight additional ISA short Courses.

Attendance at the show is critical to keeping the show in existence!!! The vendors want to see our membership there. This show is the main source of funding for our Cincinnati Section. We need to support it and the exhibitors.

For more information on the 1997 Cincinnati ISA-IEEE Conference & Exhibit, there is a web page at <http://home.fuse.net/isa-ieee>.

**1997 Cincinnati ISA-IEEE
Conference & Exhibit**



Cincinnati Convention Center
April 22 and 23

**** FEATURING ****

Process Control Short Course by Dr. Carlos Smith
ISA Short Courses

**** PLUS ****

Demos and Factory Representatives to Answer Your Questions
17 FREE Conference Programs and FREE Exhibit Area

Free Conference Programs	Exhibit Hours
April 23 and 23 9 AM - 12 Noon	April 22 11 AM - 6 PM
	April 23 10 AM - 4 PM

*Co-sponsored by the Cincinnati Sections of
The International Society for Measurement & Control (ISA)
The Institute of Electrical and Electronics Engineers (IEEE)*



LETTER TO THE EDITOR

The following letter was sent via e-mail to Randy Holt on March 17, 1997 regarding the March 1997 article by Dick Reiman on The Whirlwind Project:

I am a metallurgist who is a lifetime member of the IEEE. Your March article in the Cincinnati Newsletter on the Whirlwind Project at MIT brings back memories for me. I worked at Armco Research (Middletown) where we produced ORTHONIK, the equivalent of Deltamax for magnetic amplifiers. I visited MIT in the early fifties and worked with Bill Papian, an assistant for Jay Forrester. Bill was interested in tape wound cores of ultrathin Permalloy which we rolled at Armco. The advantage was that much less current was required for switching, but the speed was less than for

the ferrite cores in coincident-current memory applications. As you well know, most magnetic devices gave way to the transistors which are making this message possible.

- Martin Littmann, ChE, '41 (UC)

Dee Scott (call for meeting reservations)	385-9446
Randy Holt - Chairman	572-5710 (Office), holthr@nku.edu (E-mail)
Bob Haas - Vice Chairman	231-2584, rwhaas.engr@worldnet.att.net (E-mail)
Orest Melnyk - Treasurer	397-5419, o.melnyk@ieee.org (E-mail)
Chris Anderson - Secretary	573-6511, canderso@uceng.uc.edu (E-mail)
Ron Harbaugh - Member-At-Large	352-6202
Eric Wright - Member-At-Large	881-3329
Jack Beckmeyer - Arrangements Chairman	353-2643, 353-2671 (Fax)
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APRIL 1997

IEEE CINCINNATI SECTION NEWSLETTER



**The Institute of Electrical and
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C/O Dee Scott
P.O. Box 53308
Cincinnati, Ohio 45253**

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